

It can be seen that the method of both of Claims 1 and 53 is applied to a "semiconductor substrate while minimizing the diffusion of dopant atoms" by use of "a pulsed beam of particles having a duration" of less than or equal to  $10^{-4}$  seconds, and between  $10^{-10}$  seconds and  $10^{-4}$  seconds, respectively.

There are numerous differences between what is claimed by the Applicants in amended claims 1 and 53 and what is disclosed by Asakawa. A summary of those differences are as follows:

	<u>Claims 1 and 53</u>	<u>Asakawa</u>
substrate:	semiconductor	insulating glass (quartz)
diffusion:	minimized	not minimized
source:	pulsed particle beam	continuous beam
coverage:	small amorphous region	entire surface of substrate
duration:	not more than $10^{-4}$ second	none recited

The significance of these differences is highly relevant to whether or not what is claimed in claims 1 and 53 is obvious from Asakawa.

A semiconductor substrate is a **good thermal conductor**, quartz is a **poor thermal conductor**;

In the application of Claims 1 and 53 minimization of diffusion is necessary to not destroy the component being formed, Asakawa's purpose is to form a single crystal thus has **no reason to minimize diffusion**;

In the application of Claims 1 and 53 a pulsed particle beam is necessary to control diffusion, Asakawa has no reason to control diffusion thus he **no reason to consider using of anything other than a continuous beam**;

In Claims 1 and 53 a small amorphous region is the target of the pulsed beam, Asakawa's focus is the **entire surface**; and

In claims 1 and 53 the period of exposure is not more than  $10^{-4}$  second,

Asakawa does not recite beam duration since application **can tolerate seconds of exposure.**

Additionally, each of Claims 1 and 53 call for the activation of the amorphous region, whereas Asakawa's purpose is crystallization of a single silicon layer on the surface of quartz. If the method disclosed by Asakawa were used on the substrate called for in Claims 1 and 53, the intended final structure would be destroyed.

For all of these reasons Claims 1 and 53 as amended can not be said to be obvious from Asakawa and thus Claims 1 and 53 are in condition for allowance.

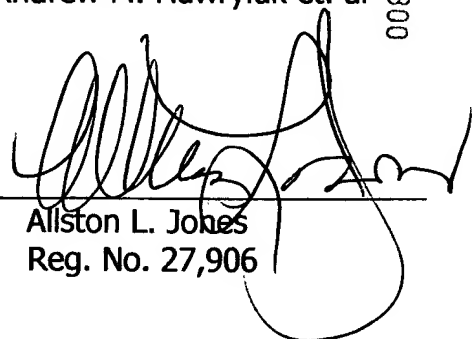
Given that each of the other rejected claims are dependent from either Claim 1 or Claim 53, they too are patentably distinguishable from Asakawa.

All of the claims are now in condition for allowance.

Favorable action is respectfully requested.

Respectfully submitted,  
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by

  
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